# National Institute of Environmental Health Sciences (NIEHS) Workforce Plan: FY 2002-2003

## Section I: Narrative (New Hiring)

**New Positions: Intramural – 109; Extramural – 28; Summer – 210; NIEHS total – 347**

This document represents a plan of action that will be adapted as needed to reflect all new policies that may emerge as a result of workforce initiatives within NIH, DHHS, and the government as a whole.

NIEHS is facing unprecedented workforce demands as a result of critical new and expanded research initiatives. Ongoing intramural and extramural research efforts are typically long term and high risk in nature, and involve unique components such as the National Toxicology Program (NTP), epidemiological studies of environmentally associated diseases, and intervention and prevention studies to reduce the effects of public exposures to hazardous environments. Critically important new initiatives include translational research, exploration of new advances in cell and molecular biology and molecular medicine (from bench to bedside), disease prevention strategies, the study of environmental autoimmunity diseases, reproductive and developmental toxicology and toxicogenomics, and other unique interdisciplinary research. In addition, important new scientific advances in genomics have recently emerged, and powerful new technologies have been developed for expression profiling of mRNAs and proteins. NIEHS must take advantage of these developments and expand its fundamental neuroscience capabilities to address the problem of gene-environment interaction in neurological diseases.

- **Impact of Turnover:** Although NIEHS studies have shown staff members typically elect to stay with NIEHS once hired, NIEHS must still expect to lose up to 17% of its workforce by 2003 as a result of increasing numbers of retirement eligibles. We will be evaluating all vacancies that occur to determine if they should be filled or redirected to other critical and emerging functions. In addition, plans call for the current workforce to be re-trained to fill vacant positions if their current function is no longer needed. However, with the exception of those areas that are being reviewed for consolidation opportunities (such as Human Resources), our replacement ratio will remain close to one to one. This is because more than 80% of the NIEHS FTE's provide for direct management of science, and that science mission has greatly expanded as a result of the new and expanded initiatives described in Section II.
- **Human Resource Implications of Achieving Strategic Goals:** NIEHS must optimize its opportunities to create and maintain a highly skilled and multidisciplinary workforce. NIEHS developed a *Recruitment, Training, and Retention Report (February 2001)* to plan for the impact of attrition, competition with the private sector for high demand skills, potentially increasing numbers of critical senior staff retirements, and regulatory barriers such as limited recruitment and appointing authorities and the currently cumbersome process of approving and appointing individuals. NIEHS is proceeding in accordance with that report, to develop a recruitment and retention program that will address key areas of imbalance and ensure effective support for the many new critical research initiatives. Recruitment and retention tools, such as Title 42, will be used to attract world class scientists and provide competitive salary ranges that will aid in retaining qualified and highly skilled personnel needed to accomplish the NIEHS mission. We will also utilize best practices and other streamlined approaches that ensure quality administrative and infrastructure support.

- **Resources Focus on Programmatic Areas:** NIEHS resources primarily focus on scientific initiatives, but those initiatives also create a need for additional facilities, equipment, and support functions such as information technology, contracts and grants management, and general administrative/clerical responsibilities.
- **Impact of Facilities on Human Resource Planning:** New and expanded research initiatives will generate a corresponding increased need for laboratory and office space as well as scientific and information resources equipment. In addition, our remote location impacts on our ability to share resources with the other Institutes. Therefore, NIEHS facilities support staff will be challenged to continue to provide high quality support for expanded requirements.
- **Impact of Technology:** After sequencing the genome, the use of advanced technology capabilities is essential to best take advantage of scientific knowledge by ensuring that vital information is disseminated to the scientific and lay community.
- **Telecommuting/Flexible Workplace Programs:** As advanced technology capabilities are brought online, telecommuting/flexible workplace programs will be investigated as options for current and additional staff members.
- **Performance Management/Manage Workforce Issues:** NIEHS research programs are reviewed by internal and external Boards. These groups play an important role in reviewing critical resources, determining the future direction of research activities, and ensuring that NIEHS research proceeds in the most appropriate direction for humankind. Internal performance management also plays an important role in identifying the workforce needed for NIEHS program objectives, allowing management to assess current and future skill level requirements and identify training that would enhance overall performance.
- **Buyouts/Voluntary Early Retirements:** Buyouts/voluntary early retirements would provide incentives for retirement of existing senior staff who are not highly skilled in new information technology and scientific requirements. Retirements of that nature would enable NIEHS to hire personnel with more appropriate expertise in newly emerging fields of science and technology. We will also identify work that is no longer needed. Determining what positions should be included in a "buy-out" would be the first step in determining whether or not these authorities will be of benefit.
- **Summer Hires:** NIEHS takes a leadership role in science education outreach, and is committed to sharing with students and educators the intensity, sense of discipline, and satisfaction that careers in science can impart to those who pursue them. Further, NIEHS uses summer appointments to encourage women and underrepresented minorities into science arenas. Summer hires and other temporary appointments are expected to equal 105 each year for 2002 and 2003 (for a total of 210).

## Section II: Description of New NIEHS Initiatives for FY 2002 and 2003

NIEHS will need highly skilled scientists, technical support, postdoctoral fellows, and other on-site support staff to carry out critical research needs in the following new or expanded areas over the next two years. The numbers in parentheses relate to relevant portions of the NIEHS Strategic Plan 2000 (see the Strategic Plan Table of Contents graphic at conclusion). The numbers in brackets represent new positions. Summer hires have been discussed in the previous narrative and are not addressed below.

**Intramural**

- **Signal Transduction** (1, 5) – This research will provide a sound scientific basis for public health policies and define environmental and genetic components of human diseases. [20]

- **Pulmonary Pathobiology** (1,4) – This program will provide a fundamental understanding of the individual susceptibility to respiratory exposures and serving public health needs by providing the scientific basis for the design of effective prevention strategies. [15]
- **Environmental Neurosciences** (1,4) -- This program will provide the scientific basis for public health policies relating to the prevention and treatment of neurological disorders such as Parkinson's and Alzheimer's diseases as well as pathological behaviors. [14]
- **Structural Biology** (1,2) - This research will provide the scientific bases for research covering a wide range of human diseases as well as develop new technologies for modeling molecules and pathways important in environmentally caused diseases. [5]
- **Reproductive and Developmental Toxicology** (1,3,5) - This research will identify new environmental components of diseases, and define environmental and genetic components of human diseases, providing the scientific underpinnings for development of sound public health policies to prevent developmental diseases and deficits. [10]
- **Free Radical and Biochemistry** (1,2) - This research contributes to the scientific rationale supporting public health policies relative to environmental exposures and an understanding individual susceptibility to environmental exposures. [9]
- **Environmental Autoimmune Diseases** (1,4,5) – This research has the potential of defining critical prevention strategies, characterizing genetic origins of individual susceptibility to autoimmune disease, and contributing to the development of autoimmune disease cohorts. [9]
- **Molecular Carcinogenesis** (1,4) -- This research will provide the scientific bases for public health decisions on environmental carcinogens, help define the role of individual susceptibility in cancer, and provide the scientific rationale for prevention strategies. [9]
- **Toxicogenomics** (1,2,3,4) - This research will use the methodologies and information of genomics science to characterize biological responses to environmental stressors/toxicants, to provide a unified strategy for development of public databases on these chemicals, to support public health policies on environmental chemicals, and to develop/validate high throughput screening approaches. [3]
- **Biostatistical Genetics** (1,4,5) –This research will lead to novel statistical techniques for making inferences from the relevant genetic data, and will have profound influence on the public health of the US population, the development of health science policies, and the understanding of data from environmental disease cohorts. [3]
- **Molecular Genetics** (1,4) - This research is critical for the understanding of individual susceptibility to environmental toxicants and for the development of public health prevention strategies. [4]
- **Molecular Toxicology** (1,3,4) –This research will allow the NTP to use mechanistic approaches for the evaluation of toxicological data, help identify environmental components of human diseases, and identify mechanisms of individual susceptibility to environmental exposures. [7]
- **Library Services** (8) – NIEHS must enhance its interactive Library resources by adding online access features that allow the public to retrieve consumer health information and scientific findings more easily and effectively. [1]

**Extramural**

- **Exposure Assessment and Translational Health Research** (1, 2, 4, 6, 8, and 9): There will be an increased emphasis on exposure assessment and translational health researach, as well as behavioral science, health disparities, molecular epidemiology, and toxicogenomics. In fact, the Toxicogenomics Research Consortium is a priority NIEHS national-level program. [4]
- **Worker Training and Education Program and Superfund Basic Research (SBR)** (1, 2, 5, 6, 7, 8, 9) – An environmental safety and health training on-line learning initiative is required to deploy enhanced/advanced training on a nationwide information delivery system to health care

professionals. In addition, the SBR Program will develop an exposure assessment portfolio, and NIEHS will expand its partnership role with investigators, other agencies, and industry. [2]

- **Environmental Genome Project (EGP) Expansion** (2, 3, 4) – The Environmental Genome Project, a multi-disciplinary, collaborative effort, will be expanded to investigate the complex interplay between genetic susceptibility, environmental exposures, and aging. The project will make available a central database of the polymorphisms to support both functional studies of alleles and population-based studies of disease risk. There will also be an increased emphasis on grants relating to breast cancer, toxicogenomics, and genomics initiatives. The substantial increase in volume and complexity of programs requires greater oversight and administration of these programs, and NIEHS must build its professional capacity to manage and deploy grantee education and training programs and cutting edge information technology for teams with disparate disciplines. [7]
- **Adult Onset of Childhood Diseases, Bioinformatics, and Border Health** (1, 2, 8, 9) - The Adult Onset of Childhood Disease program will address major public health and health disparity issues. Bioinformatics efforts will combine studies of genetics, genome-wide mRNA expression, cell and tissue-wide protein expression to understand the roles of gene-environment interactions in disease. This methodology of data analysis requires high computational capacity such as supercomputer and parallel processing. Border Health initiatives will investigate the role of environmental exposures in peoples along the US-Mexico border to ultimately decrease the prevalence,, morbidity, and mortality of environmentally-related border health diseases. [7]
- **Technology Infrastructure:** (9) – This represents the information technology support needed for general support of expanding and new grants programs, which involve sophisticated scientific databases and supporting computing resources. [3]
- **Environmental Health Policy Service Fellowships** (7) – These fellowships will permit accomplished and societally aware postdoctoral to mid-career scientists to contribute to Federal public policy making processes through assignments at NIEHS and other environmental health agencies. [4 ]
- **Station Support Acquisitions** (9) – NIEHS has experienced a 25% increase in station support contracts and purchases as a result of NIEHS serving as the Service Center Provider for the National Human Genome Research Institute. [1]

# NIEHS
# *Strategic Plan 2000*

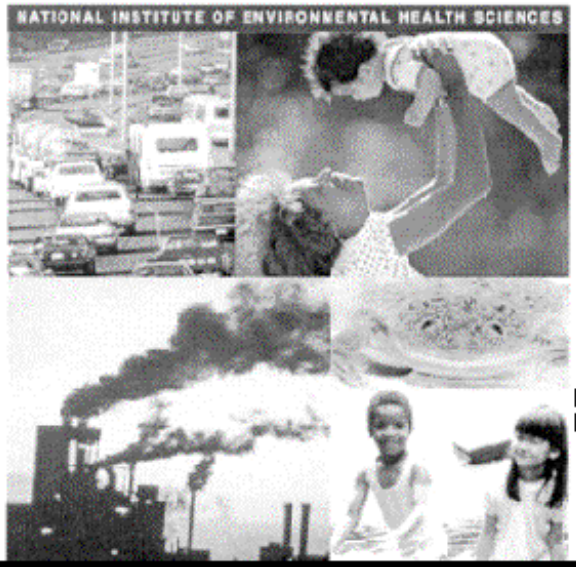


**TABLE OF CONTENTS**



(the Strategic Plan is available in full text at: http://www.niehs.nih.gov/external/plan2000/)

May 30, 2001

# NIEHS Hiring Plans for FYs 2002/2003

| | FY 2002 | FY 2003 | Total |
|---|---|---|---|
| INTRAMURAL | | | |
| Senior Investigators [1] | 0 | 10 | 10 |
| Investigators [1] | 12 | 8 | 20 |
| Other MD/PhDs, in FTE positions | 12 | 10 | 22 |
| Other MD/PhDs in non-FTE positions (IRTA, VF) | 72 | 68 | 140 |
| Other lab/clinical staff => GS-13 | | | 0 |
| Other lab/clinical staff =< GS-12 | 35 | 32 | 67 |
| Admin/support staff => GS-13 | | | 0 |
| Admin/support staff =< GS-12 | 2 | | 2 |
| Infrastructure support => GS-13 | | | 0 |
| Infrastructure support =< GS-12 [2] | | | 0 |
| Summer and other temps not listed above (include summer IRTAs) | 100 | 100 | 200 |
| TOTAL INTRAMURAL | 233 | 228 | 461 |
| EXTRAMURAL | | | |
| HSAs/SRAs and other senior level science administrators => GS-13 | 8 | 8 | 16 |
| Other science administration positions =< GS-12 | 8 | 2 | 10 |
| Grants Management and R&D Contract Staff => GS-13 [3] | 5 | | 5 |
| Grants Management and R&D Contract Staff =< GS-12 [3] | 8 | 8 | 16 |
| Administrative and support staff => GS-13 | 5 | | 5 |
| Administrative and support staff =< GS-12 | 10 | 10 | 20 |
| Infrastructure support => GS-13 | | | 0 |
| Infrastructure support =< GS-12 [2] | | | 0 |
| Summer and other temps not listed above | 5 | 5 | 10 |
| TOTAL EXTRAMURAL | 49 | 33 | 82 |
| IC TOTAL | 282 | 261 | 543 |

[1] Using OIR professional designations

[2] Include all wage grade positions related to infrastructure in this group

[3] Includes 1101, 1102, 301 and 303 series where individual is engaged in these activities on a full-time basis.